

**Repair of Long Gallery Ceiling
The Northern College, Wentworth Castle, Stainborough****Options appraisal and Method Statement****1.0 Introduction**

Issues have been identified affecting the stability of the plasterwork to the ceiling of the Long Gallery, the principal room of the Baroque phase of Wentworth Castle (see photos below). Whilst there is some longstanding cracking, recent checks and investigations have revealed the ceiling to be at risk of detachment. This is an issue which has also been identified in other rooms of the same construction phase, where it has been found that the laths are fixed very close together allowing little key for the plaster to pass through to create 'hooks' mechanically binding the plaster to the supporting. Given the height of the room (over 10m), the risk of detaching plaster is both a safety concern and a risk to the historic fabric below. The library is currently closed for access to address safety concerns for users, but historic fabric remains at risk of loss.

2.0 Repair Options Considered

Alternate repair options have been considered:

1. Replastering/stabilisation - this is considered to be unaffordable as present. The solution would be permanent, the extent of retention of historic fabric would depend on methods conservation methods employed. This would either require loss of original fabric (stripping the ceiling and laths to allow like for like repair with a laths spaced more widely to provide a plaster key) or permanent intervention (fixing to pads to the rear of the ceiling). Access would be difficult for a pad restraint system as the voids behind the ceilings taper into the walls with the curve of the ceiling.
2. Plywood panelling - this solution has been applied as an emergency repair previously. It is considered unsightly and detrimental to the appearance and significance of the space.
3. Underdrawing with a matching fibrous plaster 'shell' (on battens below existing) - this is considered a discrete intervention, the existing ceiling will remain in situ and be supported, allowing repair or reinstatement at a later date should costs or a change in repair methods allow.
4. Netting - due to the curve and size of the ceiling within the Long Gallery the fixing of netting close enough to the ceilings to provide restraint or catch debris is not achievable.

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3.0 Preferred Repair Options

3.1 The Long Gallery

Option 3, underdrawing with a matching fibrous plaster 'shell' is preferred, as this retains both the existing historic fabric and the appearance of the building. Although the option presents a finished appearance, the existing ceiling will be restrained and protected allowing the restraint and repair or full restoration of the existing ceiling at a later date.

3.2 The Italian Stair

Option 4, to net tight below the ceiling is preferred, as this retains both the existing historic fabric and the appearance of the building. The existing ceiling will be restrained and protected allowing the restraint and repair or full restoration of the existing ceiling at a later date.

4.0 Method statement and sequence of repair

4.1 The Long Gallery

Works are proposed as follows:

1. Prior to the works, the Queen Anne 3 room ceiling below the Long Gallery is to be propped and stabilised to reduce risk of collapse.
2. The floor of the Long Gallery is to be checked to ensure adequacy to support the required mobile scaffold.
3. The remaining insulation is to be removed and the remainder of the ceiling is to be cleaned and checked from above.
4. Ceiling structure to be checked for adequacy to support additional weight of shell structure.
5. The fittings and the fireplaces etc. in the Long Gallery to be protected during the works.
6. Scaffold is to be erected on spreader plates. Scaffold is to bridge library pods.
7. Further ceiling surveys are to be carried out once access is available. Templates for fibrous plaster made.
8. Ceiling stabilisation is to be carried out in 3m sections to the full width of gallery. Battens are to be installed, with stainless steel fixings through the existing ceiling to the existing ceiling and floor joists above. Soft packing will be inserted as required, and a fibrous plaster (fibre reinforced gypsum) shell installed to match the ceiling profile. The shell is to comprise around 270 sections, with flush scrim taped joints.
9. Services including fire and smoke detectors are to be extended to the new ceiling surface below their existing positions.
10. To the north and south bays, the shell is to be finished each side of the existing mouldings with a shadow gap to the run plaster mouldings. There's will remain visible, bur recessed. The mouldings are to be checked with additional fixings provided if required.
11. On completion the ceiling is to be redecorated to match the colour of the existing.

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4.2

The Italian Stair

Works are proposed as follows:

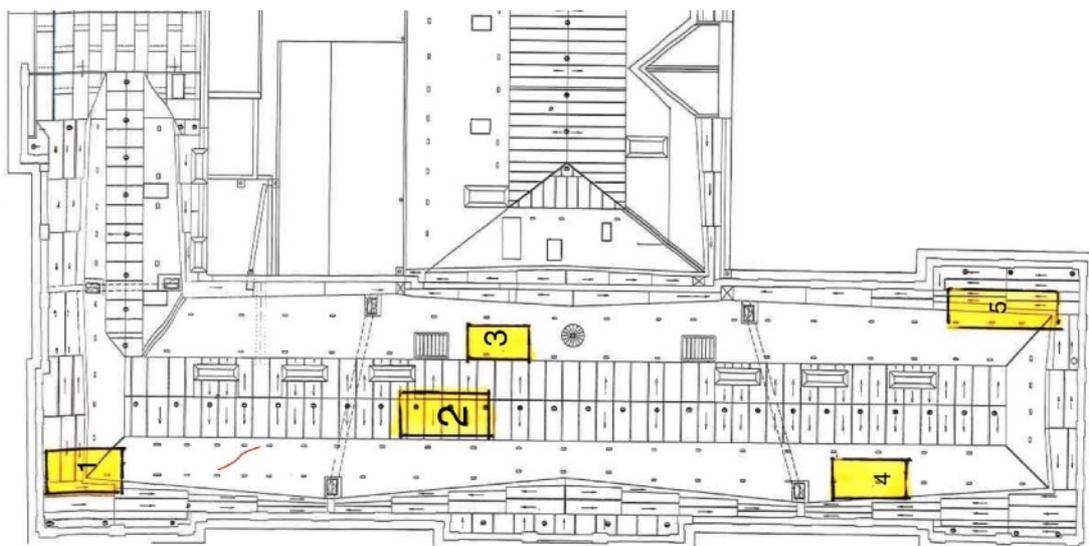
1. The floor and staircase are to be checked to ensure adequacy to support the required scaffold.
2. Statuary will be protected.
3. A fine gauge net will be fitted tight to the underside of the ceiling anchored to walls and the central ceiling boss.

Report prepared by

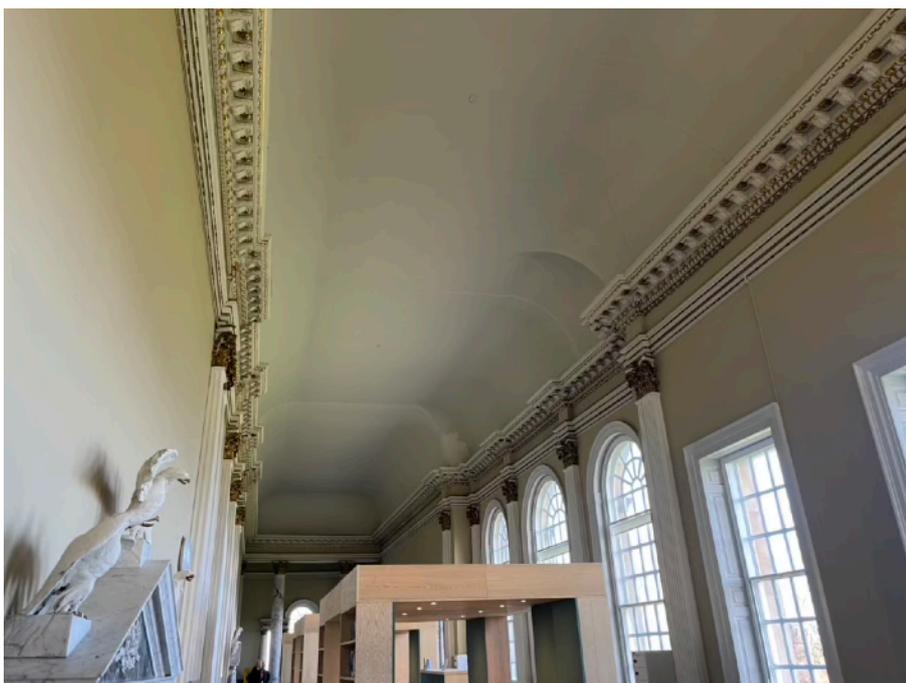
Richard A Storah

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Photographs



Key plan showing photo locations. Area 3 is above crush hall. Area 5 is above the Italian Stair.



Interior looking north, showing previous plywood repair.

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Interior of northern ante-space showing run moulded plaster detail at head of coffered ceiling section.



Area 1 showing lack of key and beetle damage

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Area 1 showing lack of key and roll of coffered section.



Area 2: General view.

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Area 2: Laths are close fixed with little key to the plaster.



Area 3: This section has been renewed in plasterboard previously.

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Area 4 Showing a typical section of floor boards.



Area 4 Laths are close jointed with little plaster key.

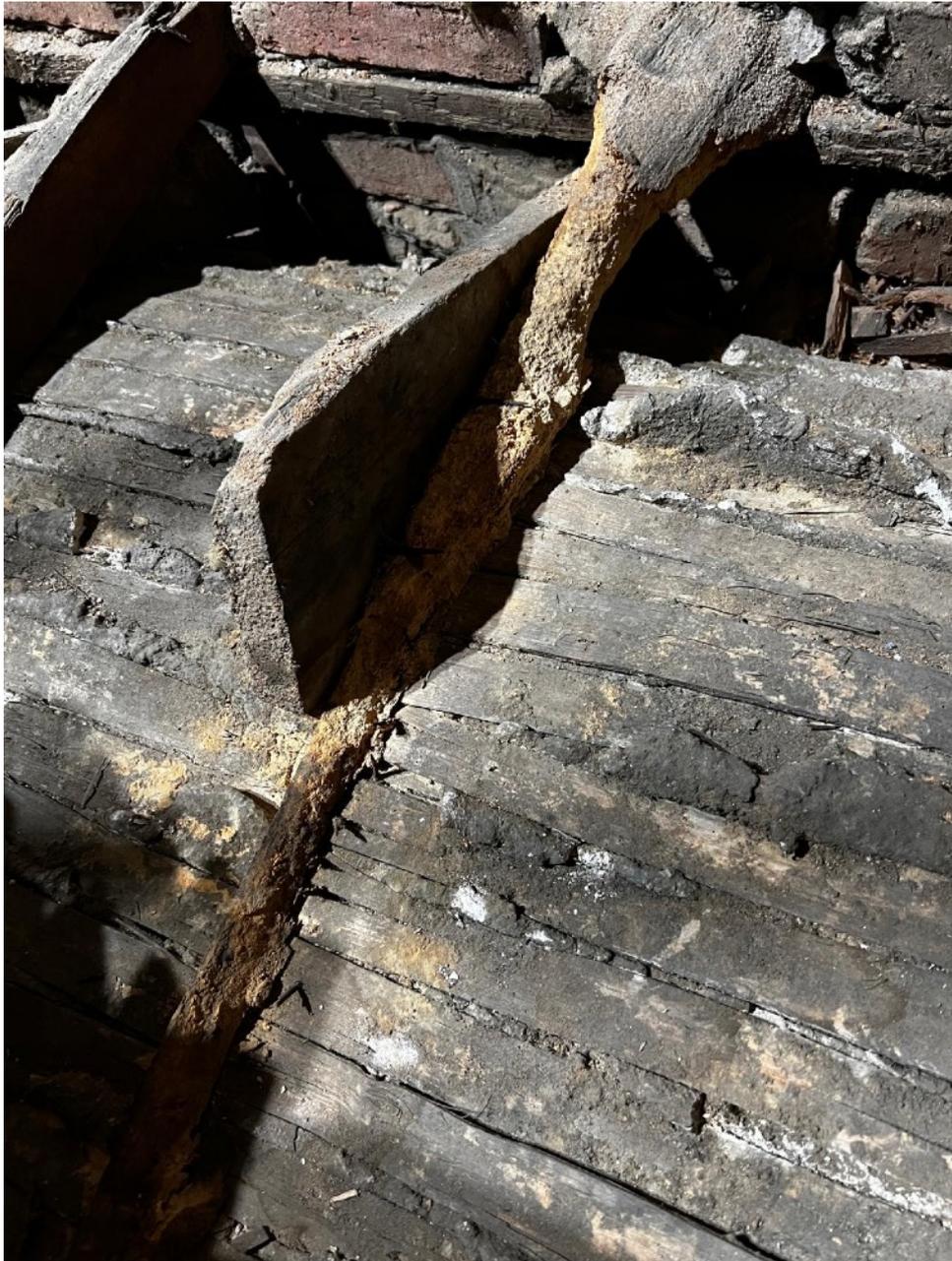
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The Italian Stair (Area 5 above)



The structure above the ceiling has been reinforced in the past.



Area 5, there is extensive beetle damage to localised timbers.

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Area 5 the extent of the plaster keys is varied. There are areas of cracking.



Area 5, some areas are debonded.